

What is Claimed:

1. A process for the production of hydrogen sulphide by reduction of a sulphur source, which comprises:

providing a source of elemental sulphur;

providing a source of liquid;

mixing the elemental sulphur with the liquid to obtain a liquid medium;

subjecting the liquid medium at a pH between 5 and 9 to an anaerobic biological treatment in a bioreactor in the presence of sulphur-reducing bacteria as a catalyst, and hydrogen gas, carbon monoxide or organic compounds as an electron donor, and at a hydraulic retention time of at least 5 days; and

stripping the hydrogen sulphide from the liquid medium to produce a gas containing at least 1 vol.% of hydrogen sulphide.

2. The process according to claim 1, wherein the hydrogen sulphide is stripped from the bioreactor, at such a rate that a pH between 6 and 8.5 is maintained in the bioreactor.

3. The process according to claim 1, wherein a sulphide gas containing at least 3 vol.% of hydrogen sulphide is produced.

4. The process according to claim 3, wherein a sulphide gas containing at least 10 vol.% of hydrogen sulphide is produced.

5. The process according to claim 1, wherein carbon dioxide is also stripped from the liquid medium by addition of an inert gas; said carbon dioxide being subsequently separated from hydrogen sulphide.

6. The process according to claim 1, further comprising a step of concentrating the hydrogen sulphide in the produced gas.

7. The process according to claim 1, wherein a sulphide concentration of at least 300 mg/l is maintained in the bioreactor.

8. The process according to claim 7, wherein the sulphide concentration is at least 600 mg/l.

9. The process according to claim 8, wherein the sulphide concentration is at least 3000 mg/l.

10. The process according to claim 1, wherein hydrogen is used as the electron donor.

11. The process according to claim 10, wherein a temperature of 15-40°C is maintained in the bioreactor.

12. The process according to claim 1, further comprising a step of subsequently contacting the sulphide gas with a heavy metal containing stream to precipitate metal sulphides.

13. The process according to claim 12, wherein the metal sulphides are subsequently treated to produce elemental sulphur, which is recycled to the bioreactor.

14. The process according to claim 12, wherein the heavy metal comprises at least one of copper and lead.